

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>Z 4 P 60 WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/014214</b>	International filing date (day/month/year) <b>14.12.2004</b>	Priority date (day/month/year) <b>27.02.2004</b>
International Patent Classification (IPC) or national classification and IPC <b>C08G63/78 B01D5/00</b>		
Applicant <b>ZIMMER AKTIENGESELLSCHAFT</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of \_\_\_\_\_ sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-25 \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1-3 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-25	YES
	Claims		NO
Inventive step (IS)	Claims	see item 2 below.	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-25	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
Reference is made to the following documents:			
D1: DE 15 03 688 A1 (KARL FISCHER, APPARATE- U. ROHRLEITUNGSBAU; CHATILLON S.A. ITALIANA PER) 5 February 1970 (1970-02-05)			
D2: US-A-2 793 235 (JENKINSON HUGH R) 21 May 1957 (1957-05-21)			
D3: DATABASE WPI Week 200030 Derwent Publications Ltd., London, GB; AN 2000-344948 XP002320337 & JP 2000 109550 A (NIPPON ESTER CO) 18 April 2000 (2000-04-18)			
D4: DD 153 975 B (HOFFMANN, HANS-PETER, DD; KOEHLER, WOLFGANG, DD; LANGNER, SIEGFRIED, DD) 17 February 1982 (1982-02-17)			
D5: PATENT ABSTRACTS OF JAPAN vol. 010, no. 063 (C-332), 13 March 1986 (1986-03-13) & JP 60 202121 A (HITACHI SEISAKUSHO KK; others: 01), 12 October 1985 (1985-10-12)			
1. Novelty			
1.1. Method			
The prior art does not disclose a method in which diol-containing vapours treated according to the preamble of the current claim 1 are precipitated by means of spray nozzles at the edges which are arranged on a number of levels lying one above the other in the top region.			

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

1.2. The same applies to the device according to claim 7, according to which the spray nozzles of different levels are also fitted in an offset manner.

The subject matter of the independent claims is therefore novel.

2. Inventive step

2.1. Document D2 is considered to be the closest prior art, since a method according to the preamble of claim 1 is carried out and this takes place in a spray condenser which is identical to the direct-contact condenser used according to the application. The glycol is precipitated in the top region of the condenser by at least 4 spray nozzles in the condenser. Moreover, D2 is likewise concerned with the avoidance of troublesome deposits on the condenser walls.

2.2. The subject matter of the application according to claim 1 differs from this prior art in that

- a) the nozzles are arranged in the top region in at least two levels lying one above the other,
- b) circulated, cooled diol is sprayed without the addition of alkaline saponifying agents.

2.3. Since no technical effect in comparison with D2 has been demonstrated, it must be assumed that a further method (by which deposits are removed better, not as well or equally well) is provided, a method which (obviously) has the advantage of avoiding the alkaline compounds (and resultant problems).

It is plausible that, with a corresponding advantageous refinement (known to a person skilled in the art) of the method (sufficient nozzles, arrangement, spray cone geometry), satisfactory results can be achieved.

Therefore, a method which removes the contaminants

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in a purely mechanical way is provided as an alternative to D2.

- 2.4. Since, as stated above, it appears to a person skilled in the art that the method can be successfully carried out, it seems at the same time to be obvious. The fact that a number of nozzles create redundancy (if the spray patterns overlap), with a positive effect should a nozzle fail, and that the spraying provides surface coverage (given appropriate arrangement of the nozzles and angles of dispersion) does not really appear to be unforeseeable. It would only really be unforeseeable if (given the same number of nozzles and angles of dispersion) the method applied led to the same result as the prior art or even to a still better result than the prior art (D2 or D3-D5).

However, according to the prior art found by the search, which is concerned with the removal of deposits from condenser walls, other measures are taken: instead of the nozzles at the edge, sprays similar to shower heads are fitted in the middle of the cross section of the condenser tube (D3-D5); furthermore, the configuration of the direct-contact condenser is different (introduction of vapours not in the top region or in countercurrent, internals), so that it is questionable whether a person skilled in the art would install the cleaning systems mentioned in these documents in the condenser known from D2 at all.

- 2.5. According to claim 7, a device for carrying out the aforementioned method is claimed; apart from the aforementioned feature a), the nozzles are also arranged offset. With respect to the problem solved, essentially the same argumentation as under item 2.3. above applies.

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However, these measures are not suggested by the  
prior art found.